

Notice of Allowability

Application No.

10/058,157

Examiner

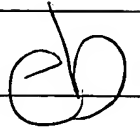
Krishnan S Menon

Applicant(s)

PRUTKIN, VLADIMIR

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-- **Th MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment of 11/13/03.
2. ☒ The allowed claim(s) is/are 26-37; RENUMBERED 1-12.
3. ☒ The drawings filed on 29 January 2002 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No. _____.
 - (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
 - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1 <input type="checkbox"/> Notice of References Cited (PTO-892) | 2 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 4 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____ |
| 5 <input type="checkbox"/> Information Disclosure Statements (PTO-1449), Paper No. _____ | 6 <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 7 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9 <input type="checkbox"/> Other _____ |

DETAILED ACTION

Claims 26-37 are pending.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended to correct the claim numbering under 37 CFR §1.126. Applicant submitted a new set of claims, which are the objected claims from the first action rewritten, with numbering from 20 to 31. Since claim numbers 20-25 were already used once for the claims that were withdrawn, the new set of claims are renumbered from 26-37 in this amendment.

Amended list of claims:

1 ~~26~~. (Currently Amended) A filtering membrane for separation of one substance from another substance, wherein at least one of said substances is a fluid, said membrane comprising:

a first film made from a polymer material;

a second film made from a polymer material;

a plurality of welding seams that connect said first film to said second film and form at least a first closed cell and a second closed cell, said first closed cell and said second closed cell being interconnected through said welding seams penetrable only to said one substance and not penetrable to said another substance;

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said first closed cell having an inlet opening formed in said first film for the supply of said one substance and another substance into said first cell, said second closed cell having an output opening formed in said second film for discharge of said one substance penetrated into said second closed cell through said welding seams; said welding seams having a structure, which at least partially is an amorphous structure;

at least one of said first film and said second film having crazes.

² 27. (Currently Amended) The filtering membrane of Claim ~~26~~¹, wherein said crazes are filled with a craze-filling material selected from a group consisting of a solid material, a liquid material, and a gaseous material.

³ 28. (Currently Amended) The filtering membrane of Claim ~~27~~², wherein said craze-filling material is selected from a group consisting of a material for controlling dimensions of said crazes, a treating material for treating said one substance, a material for treating said another substance, and a material for treating both said first substance and said another substance.

⁴ 29. (Currently Amended) The filtering membrane of Claim ~~28~~³, wherein said liquid material is a material with a high coefficient of thermal expansion for expanding the volume of said crazes during said welding.

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- 5 ~~30~~. (Currently Amended) The filtering membrane of Claim ~~28~~³, wherein said treating material is an electrically charged material.
- 6 ~~31~~. (Currently Amended) The filtering membrane of Claim ~~26~~¹, wherein said amorphous structure comprises more than 50% of said structure.
- 7 ~~32~~. The filtering membrane of Claim ~~31~~⁶, wherein said amorphous structure comprises 100% of said structure.
- 8 ~~33~~. (Currently Amended) A filtering membrane for separation of one substance from another substance, wherein at least one of said substances is a fluid, said membrane comprising:
- a first film made from a polymer material; a second film made from a polymer material;
 - a plurality of welding seams that connect said first film to said second film and form at least a first closed cell and a second closed cell, said first closed cell and said second closed cell being interconnected through said welding seams penetrable only to said one substance and not penetrable to said another substance;
 - said first closed cell having an inlet opening formed in said first film for the supply of said one substance and another substance into said first cell, said second closed cell having an output opening formed in said second film for discharge of said one substance penetrated into said second closed cell through said welding seams;

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said welding seams having a structure, which at least partially is an amorphous structure;

said polymer material of said first film and said polymer material of said second film being selected from the same polymer materials and different polymer materials;

said polymer material of said first film and said polymer material of said second film being thermoplastic polymer materials;

at least one of said first film and said second film having crazes.

⁹ 34. (Currently Amended) The filtering membrane of Claim ⁸ 33, wherein said crazes are filled with a craze-filling material selected from a group consisting of a solid material, a liquid material, and a gaseous material.

¹⁰ 35. (Currently Amended) The filtering membrane of Claim ⁹ 34, wherein said craze-filling material is selected from a group consisting of a material for controlling dimensions of said crazes, a treating material for treating said one substance, a material for treating said another substance, and a material for treating both said first substance and said another substance.

¹¹ 36. (Currently Amended) The filtering membrane of Claim ¹⁰ 35, wherein said liquid material is a material with a high coefficient of thermal expansion for expanding the volume of said crazes during said welding.

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✓ 37. (Currently Amended) The filtering membrane of Claim 35, wherein said treating material is an electrically charged material.

Allowable Subject Matter

Claims 26-37 are allowed.

The following is an examiner's statement of reasons for allowance:

The closest prior arts are (1) Prutkin et al (US 5,998,007) which teaches a "multidirectionally stretch-crazed" polymer film having matrix material and microcapsules. This reference would provide a starting material for the membrane claimed in the present invention, and does not teach two layers welded together to form closed cells with the welds being the membrane permeable to selected materials. (2) Karp (US 2002/0185431) teaches a multi-layer microfluidic device incorporating a filter, which is compressively strained between the device layers. However, Karp does not teach the multilayers of the device as "crazed", and it would not be obvious to one of ordinary skill in the art to modify Karp to have "crazed" layers because Karp uses a separate filter material.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

~~Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.~~

Krishnan Menon
Patent Examiner


W. L. WALKER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700